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Illinois Coal Discover the Power.



2,000 construction personnel are on site at Prairie State Energy Campus. (above). Coal will come from the adjacent Lively Grove Mine, also under construction (below).



## Prairie State Energy Campus & Lively Grove Mine

Construction is underway on Peabody Energy's twin-810 MW electric units and an adjacent coal mine in Washington County. The site covers 500+ acres.

Prairie State Energy Campus (PSEC) is owned by eight not-for-profit public power companies and Peabody Energy. It will generate enough electricity to serve approximately 2.5 million families covering at least nine states.

The plant will use 6.0 to 6.5 MT of coal per year from an adjacent new mine. The power station will use super-critical pulverized coal technology and state-of-the-art devices to clean flue gas after combustion. Carbon emissions will be 15% lower than the typi-

cal U.S. coal plant.

As of May 2009, 23,000 tons of steel, 125,000 cubic yards of concrete and 69,200 linear feet of underground pipe had been used. Over 2,000 construction personnel were on-site. As of August 4, 2009, the plant was 21 percent complete. Unit 1 of the power plant is scheduled to go on line in August 2011, with Unit 2 scheduled for May 2012.

Through partnerships with Southwestern Illinois College, Illinois Eastern Community Colleges, Rend Lake College and others, PSEC has been able to recruit an educated workforce from the project area. Programs have been developed in em-

ployee/leadership training, mining certification, and welder training.

PSEC represents a major undertaking of power generation and coal mining. Total cost for development and construction is projected to near \$4 billion. The project is making a significant, positive, economic impact on the local/regional area of southwest Illinois and will continue to do so in the years to come.

PSEC received grants from the Coal Competitiveness Program in fiscal years 2005, 2007, 2008 and 2009 to be used on infrastructure, emissions control, mine development and safety facilities.

DCEO's Office of Coal Development (OCD) began in August 1974 with the statutory creation of the Illinois Coal Development Bond Act (the Act). The bond funding was awarded to projects which demonstrated new, innovative clean-coal technologies at commercial scale. In 1977, the Act was revised to the Illinois Coal and Energy Development Bond Act. The Coal Research Program was added in 1982 in response to the creation of the Coal Technology Development Assistance Fund. This program funds laboratory-scale, basic and applied research for new technologies. The Coal Development Program was created in 1996 to address the advancement of clean-coal technologies through the pilot and proof-of-concept scale. Also created in 1996 was the Coal Competitiveness Program. This program funds the improvement of coal production-related infrastructure to aid the Illinois coal industry in maintaining and improving markets for Illinois coal. The newest program, created in 2001, is the Coal Revival Program. It supports the construction of baseload electric power of 400 megawatts or more and coal gasification facilities, in Illinois that use Illinois coal.

To date, \$378.1 million from the Coal Technology Development Assistance Fund and the Illinois Coal and Energy Development Bond Fund have leveraged \$2.86 billion in private sector, coal-related investments in Illinois.

State of Illinois  
Department of Commerce & Economic Opportunity



# Office of Coal Development FY2009 Annual Report



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"The FutureGen project holds great promise as a flagship facility to demonstrate carbon capture and storage at commercial scale. Developing this technology is critically important for reducing greenhouse gas emissions in the U.S. and around the world." — *Energy Secretary Steven Chu, June 12, 2009.*

## A glimpse at Illinois coal mining

Coal production in Illinois stood at nearly 33 million tons, or 10,000 tons per miner, in 2008. The average contract delivered price in March 2009 with destinations of Indiana, Kentucky, Ohio, Tennessee, Missouri and Florida was \$57.59 per ton.

Illinois operators producing more than 1 million tons per year include Peabody Energy, American Coal, Cline Group, Knight Hawk Coal, International Coal Group, Springfield Coal and White County Coal.

Cline Group of Beckley, WV, Illinois' newest operator, is proposing six mines that could double current annual state production. Two of those mines are under development. Pond Creek in Williamson County, Cline's

first Illinois mine, is turning out 500,000 tons/month or six million tons per year.

The future holds significant promise for the Illinois coal industry. ILDNR Office of Mines and Minerals approved six new mine permits in FY2009. Another eight permits are under completeness review, and three new mines await approval.

The Illinois coal industry employed 3,448 individuals at seven surface and 10 underground mines. In addition to mining technicians, coal mines employ heavy equipment operators, electricians, maintenance workers, mechanical and mining engineers, emergency management technicians, clerical workers, laboratory technicians, land

men, managers, mine surveyors, and computer technicians.

The coal industry projects 1,200 to 2,000 vacancies within the next five years as newly permitted mines begin production and experienced miners retire.

In preparation for the increased need, Rend Lake College (RLC) and Illinois Eastern Colleges received grants to support training. Rend Lake was given a FY2008 Coal Competitiveness grant for a new coal mining training center. The RLC fall class of 2009 has 22 students registered for the Associate in Applied Science Degree and occupational certificates. Students train in a simulated underground coal mine while learning mine safety, ventilation, roof control, mine operations and maintenance.

## FutureGen moving forward

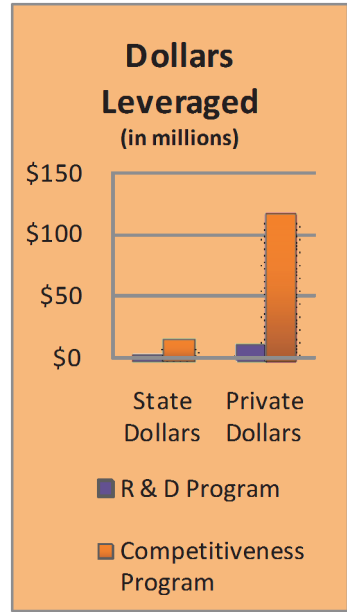
After much anticipation, U.S. Secretary of Energy Steven Chu announced an agreement with the FutureGen Alliance that advances the construction of the first commercial scale, fully integrated, carbon capture and sequestration project in the country at Mattoon, Illinois. The Record of Decision stating all four previously selected sites are

suitable for building FutureGen was also announced.

In FY2009, OCD issued three Coal Competitiveness grants to the Alliance to continue advancing the design of the injection well, the process flow, syngas production and the site specific turbines.

The U.S. DOE and FutureGen

Alliance signed a \$17.3 million agreement for preliminary design activities through 2009. State and local officials continue to support new developments.



Private dollars leveraged

Each year OCD uses state funds to leverage millions of dollars in private investment. OCD promotes and supports the Illinois coal industry by financing coal technology research, development and demonstration in the areas of coal extraction and preparation, power generation, coal gasification, flue gas cleaning, carbon management and coal chemistry.

In FY2009, OCD issued \$4 million from the Coal Technology Development Assistance Fund for 33 research and development projects. The projects leveraged \$11.3 million in private investment.

Through the Coal Competitiveness Program, OCD encourages communities and businesses to improve the efficiency of the Illinois coal industry, enhance the competitive position of Illinois coal in domestic and international markets, and open new markets for Illinois coal and coal byproducts.

In FY2009, \$16.3 million were issued for 23 grants. These projects leveraged \$116.9 million in private funds for improvements in miner safety, carbon management, new and expanded mining operations, and coal transportation systems within Illinois.

The Coal Technology Development Assistance Fund is designated for grants through the Coal Competitiveness Program and the Coal Technology Research and Development Program. The fund is financed from 1/64 of the revenue realized from the tax imposed by the Electricity Excise Tax Law, Section 2 of the Public Utilities Revenue Act, Section 2 of the Messages Tax Act, and Section 2 of the Gas Revenue Tax Act.

Advances in carbon management and clean coal technology

Starting in early 2010, 1-million metric tons of CO2 will be injected into the Mt. Simon Sandstone over a 3-year period as part of Archer Daniel Midland’s Sequestration Project.

Nine grants totaling \$4.031 million were issued in FY2009 in the areas of carbon management and clean coal technology for:

- a feasibility study on the cost of CO2 control strategies for a coal to syngas plant in Calumet, Illinois,
- expanding computer storage capabilities in support of coal research and carbon sequestration activities,

- preliminary routing and engineering of a CO2 pipeline originating in southern Illinois,
- design, engineering, and public outreach for FutureGen,
- subsurface site characterization of the extreme eastern edge of the Illinois Coal Basin,
- construction of a pilot plant to test the Rocketdyne gasifier and,
- conversion of a sulfur removal system on a power plant.

The Midwest Geological Sequestration Consortium and Archer Daniel Midland (ADM) partnered on a large-scale CO2 injection test at ADM’s Ethanol Production facility in Decatur, Illinois. Starting in early 2010, 1-million metric tons of CO2 will be injected into the Mt. Simon Sandstone over a 3-year period. OCD continues to closely follow the progress of the project.



Federal regulations require life shelters be available during a mine disaster. The 30-foot x 14-foot x 42-inch life shelter has enough air, food and water to sustain 30 people for 96 hours.

Coal mine safety

Recent coal mine disasters in other states have prompted changes in state and federal mine safety regulations. To support coal miner safety and satisfy the new regulations, OCD issued \$6.1 million through the Coal Competitiveness Program for eight grants to Illinois mine operators. The projects resulted in \$10.8 million in improvements.

OCD grants were used to purchase life shelters, fire suppression systems, wireless communication systems, tracking equipment, self-contained self rescuers (SCSR) and SCSR cache storage containers, lifelines, taglines, and multi-gas smoke detectors for five underground coal mines.

Mine rescue team equipment and rescue stations must also meet new federal requirements. Grants will be used to build and supply rescue stations at two new mines in 2009. The Illinois Mine Rescue Team will also purchase equipment to maintain certification.

New and expanded mining operations

Knight Hawk Coal (KHC) Company received a \$500,000 Coal Competitiveness grant to establish a new underground mine at the Prairie Eagle Mining Complex in Perry County. The \$11.5 million project will create 50 new mining jobs and increase production by 600,000 to 800,000 tons annually.

Peabody Investments Corporation received \$750,000 to add a sixth coal mining unit and three super-unit positions at the Gateway Mine in Randolph County. The \$7.9 million project will create 58 new jobs over a three year period.

Prairie State Generating Company received \$2 million to construct the mine slope and two airshafts at the new six-million-ton per year Lively Grove Mine in Washington County. The total project costs are \$29.5 million. The room-and-pillar mine will employ 400 permanent workers. Coal will be produced for the nearby Prairie State Energy Campus.

Illinois Coal Group, LLC received \$1.6 million to construct a new production portal at the Viper Mine in Sangamon County. The \$13.3 million project will provide more efficient access to remaining coal reserves by constructing

three shafts, improving roads, installing new electric service and building a new bathhouse, warehouse and office.

Grindstone Energy received \$532,300 to open a new surface mine in McDonough County. When complete, the \$5.3 million project will employ 32 new miners and produce 300,000 tons per year.



Five entries are being dug in the highwall for KHC Prairie Eagle East, a new underground mine. The mine will create 50 jobs in Perry County, bringing KHC total employment to 380.

Coal education

More than 2,000 students in grades five through eight participated in the 2010 Illinois Coal Calendar Contest, on the calendar’s theme “200 Years of Coal Mining in Illinois”. Twenty-five students were recognized during an awards reception for winning artists and essayists at the Illinois Executive Mansion.

The 12th Annual Coal Education Conference was held at Rend Lake Resort in Whittington, Illi-

nois. Over 120 teachers from across the state and curators from the Museum of Science and Industry in Chicago attended.

The four-day conference consisted of lectures, tours and hands-on activities correlated to the Illinois Learning Standards. By including coal education in their classrooms, teachers bring to their students and communities an awareness of our state’s greatest natural resource and

the positive role coal plays in our day-to-day lives and the economy of the state.

In all, over 4,000 Illinois students and teachers participated in coal awareness activities sponsored by OCD. Numerous requests for information on Illinois coal and Illinois coal producers from project developers and the general population were also filled by the department.



“The conference has been really useful for me to get background knowledge as well as, to find ideas about integrating coal in the curriculum through different content areas.”  
— Middle School Teacher

Coal technology research and development

Thirty-three lab-scale research and development-scale projects were funded through the OCD R&D program in FY2009. R&D areas include carbon management, coal bed methane, combustion systems, flue gas cleaning, gasification, mining methods, business practices, coal preparation, coal chemistry and materials research.

FY2009 studies include: reducing capital costs of coal-to-liquid fuels technology, reducing carbon dioxide production in coal-fired boilers, reducing mercury emissions, improving coal gasification techniques, addressing carbon conversion and energy efficiency issues that use Illinois coal in fuel cells, evaluating the feasibility of reusing produced

water from coal bed methane recovery operations for cooling or process water in existing or planned coal-based power plants in Illinois, demonstrating tertiary support systems for underground coal mines, controlling coal mine dust and developing a dry system for cleaning Illinois coal after pulverization.



A gas chromatograph-mass spectrometer is used to identify substances in a coal gas sample at SIU Coal Research Center.